CLAIMS

1. An aqueous coating formulation suitable for use with high-speed coaters such as rod and blade coaters, which comprises:

a pigment composition comprising greater than or equal to 50 % by dry wt., based on the total dry weight of the pigment composition, of a first pigment selected from the group of porous organic pigments, porous inorganic pigments, metal oxide gels and mixtures thereof, and less than 50 % by dry wt., based on the total dry weight of the pigment composition, of a second pigment selected from the group of calcium carbonate and mixtures of calcium carbonate and alumina; and

a binder,

wherein, the binder/pigment dry weight ratio in the coating formulation ranges from about 1:8 to about 1:1.

2. The aqueous coating formulation of claim 1, wherein the pigment composition comprises from about 65 to about 90 % by dry wt., based on the total dry weight of the pigment composition, of the first pigment, and from about 35 to about 10 % by dry wt., based on the total dry weight of the pigment composition, of the second pigment.

3. The aqueous coating formulation of claim 2, wherein the pigment composition comprises from about 80 to about 90 % by dry wt., based on the total dry weight of the pigment composition, of the first pigment, and from about 20 to about 10 % by dry wt., based on the total dry weight of the pigment composition, of the second pigment.

4. The aqueous coating formulation of claim 1, which has a Brookfield viscosity of from about 100 to about 1800 centipoise (at 21 °C, 100 rpm, from about 15 to about 35 % aqueous solution).

5. The aqueous coating formulation of claim 1, which has a high shear Hercules viscosity of from about 10 to about 50 centipoise at 8800 rpm, using an F2.5 bob.

6. The aqueous coating formulation of claim 1, which has a pH ranging from 6.5 to 8.

7. The aqueous coating formulation of claim 1, wherein the first pigment is a porous organic pigment selected from the group of acrylic resins, poly(vinylpolypyrriolidone), styrene resins, styrene-acrylic resins, urea-formaldehyde resins, polyvinyl chlorides, polycarbonates, and mixtures thereof.

8. The aqueous coating formulation of claim 1, wherein the first pigment is a porous inorganic pigment selected from the group of porous alumina, porous sodium aluminosilicate, porous calcium carbonate, porous clays, porous magnesium carbonate, porous synthetic amorphous silica and mixtures thereof.

9. The aqueous coating formulation of claim 1, wherein the first pigment is a metal oxide gel selected from the group of alumina gels, silica gels, polymeric gels, urea-formaldehyde gels, titania gels and mixtures thereof.

10. The aqueous coating formulation of claim 9, wherein the metal oxide gel is a silica gel having a surface area ranging from about 200 to about 800 square meters per gram, a pore volume ranging from about 0.4 to about 3.0 cubic centimeters per gram, an average particle size ranging from about 1 to about 17 microns and a pH ranging from about 2.5 to about 10.5.

11. The aqueous coating formulation of claim 1, wherein the second pigment is calcium carbonate.

12. The aqueous coating formulation of claim 11, wherein the calcium carbonate is a precipitated calcium carbonate having a surface area ranging from about 10 to about 300 square meters per gram and a particle size ranging from about 0.1 to about 5 microns.

13. The aqueous coating formulation of claim 1, wherein the second pigment is a mixture of calcium carbonate and alumina.

14. The aqueous coating formulation of claim 13, wherein the mixture comprises from about 60 to about 99 % by dry wt. of calcium carbonate and from about 40 to about 1 % by dry wt. of alumina.

15. The aqueous coating formulation of claim 14, wherein the calcium carbonate is a precipitated calcium carbonate having a surface area ranging from about 10 to about 300 square meters per gram and a particle size ranging from about 0.1 to about 5 microns, and wherein the alumina has an average particle diameter ranging from about 0.1 to about 3.0 microns.

16. The aqueous coating formulation of claim 1, wherein the binder is a water-soluble binder selected from the group of super, fully and partially hydrolyzed polyvinyl alcohols and mixtures thereof and, optionally, one or more cationic acrylic resins.

17. The aqueous coating formulation of claim 1, which is prepared by a process comprising adding the pigments and the binder to water in the following order of addition: the second pigment, the binder, the first pigment.

18. An aqueous coating formulation suitable for use with high-speed coaters such as rod and blade coaters, which comprises:

a pigment composition comprising greater than or equal to 50 % by dry wt., based on the total dry weight of the pigment composition, of a silica gel, and less than 50 % by dry wt., based on the total dry weight of the pigment composition, of a second pigment selected from the group of calcium carbonate and mixtures of calcium carbonate and alumina; and

a water-soluble binder selected from the group of super, fully and partially hydrolyzed polyvinyl alcohols and mixtures thereof and, optionally, one or more cationic acrylic resins,

wherein, the binder/pigment dry weight ratio in the coating formulation ranges from about 1:8 to about 1:1.

19. The aqueous coating formulation of claim 18, wherein the silica gel is present in an amount ranging from about 65 to about 90 % by dry wt., based on the total dry weight of the pigment composition, and wherein the second pigment is present in an amount ranging from about 35 to about 10 % by dry wt., based on the total dry weight of the pigment composition.

20. The aqueous coating formulation of claim 19, wherein the silica gel is present in an amount ranging from about 80 to about 90 % by dry wt., based on the total dry weight of the pigment composition, and wherein the second pigment is present in an amount ranging from about 20 to about 10 % by dry wt., based on the total dry weight of the pigment composition.

21. The aqueous coating formulation of claim 18, wherein the binder is a water-soluble binder selected from the group of super, fully and partially hydrolyzed polyvinyl alcohols and mixtures thereof and, optionally, one or more cationic acrylic resins.

22. The aqueous coating formulation of claim 18, which has a Brookfield viscosity of from about 100 to about 1800 centipoise (at 21 °C, 100 rpm, from about 15 to about 35 % aqueous solution).

23. The aqueous coating formulation of claim 18, which has a high shear Hercules viscosity of from about 10 to about 50 centipoise at 8800 rpm, using an F2.5 bob.

24. The aqueous coating formulation of claim 18, which has a pH ranging from 6.5 to 8.

25. The aqueous coating formulation of claim 18, which is prepared by a process comprising adding the pigments and the binder to water in the following order of addition: the second pigment, the binder, the silica gel.

26. An aqueous coating formulation suitable for use with high-speed coaters such as rod and blade coaters, which comprises:

a pigment composition comprising from about 65 to about 90 % by dry wt., based on the total dry weight of the pigment composition, of a silica gel, and from about 35 to about 10 % by dry wt., based on the total dry weight of the pigment composition, of a precipitated calcium carbonate pigment having a surface area ranging from about 30 to about 200 square meters per gram and a particle size ranging from about 0.1 to about 5 microns; and

a water-soluble binder selected from the group of super, fully and partially hydrolyzed polyvinyl alcohols and mixtures thereof and, optionally, one or more cationic acrylic resins,

wherein, the binder/pigment dry weight ratio in the coating formulation ranges from about 1:6 to about 1:1.5.

27. The aqueous coating formulation of claim 26, which has a Brookfield viscosity of from about 100 to about 1800 centipoise (at 21 °C, 100 rpm, from about 15 to about 35 % aqueous solution).

28. The aqueous coating formulation of claim 26, which has a high shear Hercules viscosity of from about 10 to about 50 centipoise at 8800 rpm, using an F2.5 bob.

29. The aqueous coating formulation of claim 26, which has a pH ranging from 6.5 to 8.

30. An ink jet recording material, which comprises:

(i) a substrate; and

(ii) one or more ink jet receptive layers located on the substrate, which are prepared using an aqueous coating formulation comprising:

(a) a pigment composition comprising greater than or equal to 50 % by dry wt., based on the total dry weight of the pigment composition, of a first pigment selected from the group of porous organic pigments, porous inorganic pigments, metal oxide gels and mixtures thereof, and less than 50 % by dry wt., based on the total dry weight of the pigment composition, of a second pigment selected from the group of calcium carbonate and mixtures of calcium carbonate and alumina; and

(b) a binder,

wherein, the binder/pigment dry weight ratio in the coating formulation ranges from about 1:8 to about 1:1.

31. An ink jet recording material, which comprises:

(i) a substrate; and

(ii) one or more ink jet receptive layers located on the substrate, which are prepared using an aqueous coating formulation comprising:

(a) a pigment composition comprising from about 65 to about 90 % by dry wt., based on the total dry weight of the pigment composition, of a silica gel, and from about 35 to about 10 % by dry wt., based on the total dry weight of the pigment composition, of a precipitated calcium carbonate pigment having a surface area ranging from about 30 to about 200 square meters per gram and a particle size ranging from about 0.1 to about 5 microns; and

(b) a water-soluble binder selected from the group of super, fully and partially hydrolyzed polyvinyl alcohols and mixtures thereof and, optionally, one or more cationic acrylic resins,

wherein, the binder/pigment dry weight ratio in the coating formulation ranges from about 1:6 to about 1:1.5.